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HIDE2: Evaluation of Elk Hiding Cover Using a Personal Computer

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ABSTRACT

An IBM[2] compatible program for personal computers is described. Input requirements are forest stand structural data; tree densities by diameter class. Output is an estimate of elk hiding cover values. Canopy diameter of shrubs and of trees with lower level foliage can be included in the evaluation. The program assumes random distribution of plants and produces a visual image representing 1 acre.

KEYWORDS: PC program, wildlife management, elk habitat

Coordination of elk habitat management and timber management on the National Forests requires comparison of existing elk habitat to habitat quality standards described in forest plans. These standards call for compilation of hiding cover and thermal cover values of forest stands. Identification of thermal cover, defined by crown canopy closure, poses no insurmountable problems because crown closure can be estimated from aerial photographs. Identification of hiding cover, however, can be extremely difficult because determination from aerial photographs is not possible, and there is rarely adequate time to obtain field samples.

This Research Note describes a program for personal computers that utilizes available timber stand information, produces hiding cover estimates with speed and precision, and runs on any IBM compatible PC (Lyon 1985). A mainframe version in FORTRAN is also available.

HIDE2: HOW IT WORKS

The currently accepted and widely used definition assumes that Hiding Cover is provided when vegetation hides 90 percent of an elk at 200 feet (Thomas and others 1979). Thus, in order to satisfy the definition, vegetation must visually obstruct the line of sight between an observer and an elk at a distance of 200 feet--and must do so in a block of sufficient width to hide an elk.

The PC program HIDE2 assumes an observer in a forest stand evaluating all points on an arc 200 feet away in increments of 1 inch. The percentage of such points made invisible by either stems or vegetation canopy is considered visual blockage. Visual blockage along the arc is evaluated in units 65 inches wide. By definition, only those units that provide 90 percent or greater visual blockage are classified as hiding cover.

The unique specialty of the PC program is that it displays the forest stand being evaluated on the screen. Input of already available stand inventory information, diameter (d.b.h.), and density (plants per acre) is requested sequentially. As answers are supplied, the following assumptions are made within the program:

Trees--all diameters up to 30 inches are considered to be tree stems. Visual blockage is created only by the stem.

Small Trees--diameters under 6 inches can be entered either as stems or as open-grown trees. Visual blockage by foliage is assumed when the diameter entry is followed by "+". The applicable foliage crown width is assumed to be 1 foot for each inch of stem diameter.

Shrubs--diameters from 30 to 90 inches are considered to be shrubs and are evaluated for visual blockage created by foliage.

As each class of vegetation is entered, random locations are generated for individual plants and the

stand is plotted on the screen at about 1:500 scale for an area representing approximately 1 acre. Symbols for trees and shrubs of various types are appropriately scaled. Intermediate output consists of accumulated totals for Plant Density, Visual Blockage, and Hiding Cover.

Entry of a diameter greater than 90 terminates the program and produces summary output. In addition to Hiding Cover, output includes a 10-class frequency distribution of visual obstruction percentages.

HIDE2: DISTRIBUTION

The program HIDE2 is available from the author at no cost on receipt of a floppy disk. The program was written on an ATT PC6300, using MS-DOS 2.11 and GWBASIC 2.0. It has been tested for compatibility on an IBM PC, MS-DOS 2.10, and BASICA. It was designed for use with a color monitor, but it will run without modification on a monochrome monitor.

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